

Jan. 1895.

## Radcliffe Observations of Comets.

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Observations of Comets *Sauerthal*, 1888; *Davidson*, 1889; *Wolf*, 1891; *Holmes*, 1892; *Rordame-Quénisset*, 1893; and *Encke*, 1894, made at the Radcliffe Observatory, Oxford.

(Communicated by E. J. Stone, Esq., M.A., F.R.S., Radcliffe Observer.)

The following comet observations were made with the 10-inch Barclay Equatorial, using the ring-micrometer, with power 100.

Date.	G.M.T.	Local Time.	Sidereal Time.	Comet Star R.A.	No. (corrected for Refraction only). N.P.D.	Apparent R.A. of Comet. Comps.	Parallax in R.A. ( $p \times \Delta$ ). p.	Apparent N.P.D. of Comet. ( $q \times \Delta$ ). q.	Parallax in N.P.D. ( $q \times \Delta$ ). q.	Log of Comet.	Log of Parallax in N.P.D. ( $q \times \Delta$ ). q.	Ref.			
Comet <i>Sauerthal</i> , 1888.															
1888.															
July 3	11 25 22	18 9 57		W.	-0 15.99	-2 48.6	4	1 3	3.58	0.25	9.7295	41.29	56.8	2.6	0.7415 (a)
5	11 7 27	17 59 53		F.B.	-3 50.00	-5 34.4	5	1 4	9.22	0.25	9.7276	41.4	25.6	2.7	0.7542 (b)
12	11 3 1	18 23 2		R.	+0 15.10	+5 37.5	12	1 7	5.05	0.26	9.7495	39.39	5.6	2.4	0.7169 (c)
Aug. 8	12 3 52	21 10 30		W.	-1 26.3	-1 16	12	0 59	49.44	0.24	9.7225	35.36	50.6	0.7	0.2077 (d)
Comet <i>Sauerthal</i> , 1889.															
1889.															
Aug. 6	9 34 48	18 32 11		W.	-3 19.99	-7 24.9	3	14 52	7.59	0.63	9.4767	86.32	5.5	1.0	0.8262 (e)
6	9 36 33	18 33 56		W.	+1 11.71	-5 52.9	7	14 52	7.89	0.63	9.4790	86.31	58.3	14.0	0.8264 (f)
22	10 26 32	20 27 8		W.	+0 5.08	-0 4.8	12	15 54	1.52	0.48	9.5599	69.7	57.4	7.5	0.7582 (g)
Sept. 6	9 48 1	20 47 39		W.	-0 7.81	+1 27.0	9	16 29	31.01	0.36	9.5199	62.33	47.4	4.8	0.7027 (h)
Comet <i>Davidson</i> , 1891.															
1891.															
Sept. 10	15 19 37	2 34 2		R.	+3 4.08	-5 51.6	4	3 53	31.48	0.14	9.1275	67.44	10.6	4.5	0.6473 (i)
10	15 35 41	2 50 8		R.	-1 38.00	+1 1.0	3	3 53	33.11	0.11	9.0323	67.44	25.3	4.5	0.6427 (j)
11	12 20 9	23 38 1		W.	+0 4.86	+4 54.1	6	3 55	16.44	0.37	9.5500	68.1	40.	5.7	0.7416 (k)
Oct. 28	10 40 20	1 3 13		R.	-8 17.88	+0 42.4	3	4 41	33.06	0.37	9.4736	90.32	10.5	8.7	0.8410 (l)
Nov. 25	10 18 16	2 31 29		R.	-1 8.93	+6 4.7	8	4 28	14.91	0.21	9.2603	102.2	35.7	8.7	0.8893 (m)
1892.	10 58 0	3 11 20		R.	-0 41.56	-8 24.4	5	4 28	14.20	0.14	9.0893	102.2	55.6	8.8	0.8939 (n)
Jan.	9 25 4	4 31 45		R.	+1 7.93	+4 31.2	8	4 15	15.66	0.02	8.4283	103.39	58.2	6.2	0.9031 (o)
6	10 41 9	5 40 1		R.	+2 50.34	-5 9.1	8	4 15	16.02	0.11	9.1329	103.39	38.0	6.2	0.8985 (p)

## Comet Holmes, 1892.

Date.	G.M.T.	Local Sidereal Time.	Obse. ver. (corrected for Refraction only), of R.A.	No. of N.P.D.	Apparent R.A. in R.A.	Parallax (p $\times \Delta$ ).	Apparent N.P.D. of Comet.	Parallax in N.P.D. (q $\times \Delta$ ).	Ref.
1893. Jan. 20	8 53 26	4 50 12	W.	-0 4' 87	+1 56" 6	h m s 1 27	2' 17	0' 14	9' 33' 13 56 20 54" 1' 6 0' 58' 31 (q)

## Comet Rondame-Quenisset, 1893.

1893. July 10	10 14 19	17 25 29	W.	+3 32' 62	-0 26' 7	3 8 26 43' 38	0' 91	9' 58' 14 42 53 4' 2	18' 0 0' 87' 63 (r)
17	10 34 12	18 13 1	W.	-3 8' 48	+0 44' 0	6 10 55 40' 50	0' 69	9' 60' 88 57 59 53' 6	11' 7 0' 83' 35 (s)

## Comet Encke, 1894.

1895. Jan. 8	6 39 28	1 46 40	R.	-3 3' 36	-1 24' 6	6 22 10 16' 97	0' 38	9' 47' 12 88 12 44' 3	8' 8 0' 83' 26 (t)

## Observers' Remarks.

(a) Clouds keep passing. The tail can be traced across the diameter of the ring, but nucleus glimmers out now and then; the end of nebulosity observed.

(b) Cloudy, but nucleus showed up brightly at times.

(c) Very difficult observation; so faint; barely visible at times. The nucleus only seen occasionally.

(d) The night exceptionally fine. The comet appeared as the faintest luminous haze; every now and then a coma showed itself as a brightening near the head of the luminosity.

(e), (f) The nucleus of comet is stellar, but rather dull, of the 9 mag., and surrounded by a coma; strong moonlight prevented a proper estimation of its width; wind gusty and sky hazy.

(g) Coma encircling a nucleus of  $10\frac{1}{2}$  mag.

(h) A small, faint patch; stellar nucleus glimpsed at times. Difficult.

(i), (j) The nucleus, mag. 12, is just within the coma, on the following side.

(k) Nucleus surrounded by nebulosity. Thin clouds came up. Observations made with great difficulty.

(l) Nucleus 12 mag. Cloudy at times.

(m), (n) Nucleus 13 mag. Comet exceedingly faint; moonlight.

(o), (p) Comet at times. At the commencement of the observations a star of the 11 mag. (the same estimated brightness as the nucleus) preceded so closely that the nucleus appeared to be double. There was no tail, but a fan-shaped coma.

(q) Coma is 2' diameter, and a faint tail seems to proceed north. (On July 16 the comet easily visible to naked eye. Mag. 4.)

(r) Cloudy at end.

(s) Cloudy at end.

Observers : W., Mr. W. Wickham ; R., Mr. W. H. Robinson ; F. B., Mr. F. A. Bellamy.

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## Assumed Places of Comparison Stars.

Ref.	Mean R.A. R.A.	Reduction to Apparent R.A.	Mean N.P.D.	Reduction to Apparent N.P.D.	Authority.
(a)	1 3 18.57	+ 1.00	41° 32' 34.2"	+ 11.2"	Mean of Radcliffe, 1845, 347; Oeltz, Arg. (N), 1155; Lalande, 2011.
(b)	1 7 58.17	+ 1.05	41 9 48.9	+ 11.1	Mean of Radcliffe, 1845, 379, and Paris, 1566.
(c)	1 6 48.57	+ 1.38	39 33 177	+ 10.4	Cambridge (Harvard), A. G., 559.
(d)	1 0 49.18	+ 2.89	35 37 46.1	+ 6.2	Mean of Radcliffe, 1845, 329, and Greenwich, 1872, 103, adopting proper motions of + 0°386 in R.A., and + 1°56 in N.P.D.
(e)	14 55 26.68	+ 0.90	86 39 34.1	- 3.7	Albany, A. G., 5111.
(f)	14 50 55.31	+ 0.87	86 37 54.9	- 3.7	Albany, A. G., 5096.
(g)	15 53 55.59	+ 0.85	69 8 13.2	- 11.0	Berlin, A. G., Zone 258.
(h)	16 29 38.11	+ 0.71	62 32 34.1	- 13.7	Comparisons with W.B. (2) XVI, 985, and W.B. (2) XVI., 998-9.
(i)	3 50 25.58	+ 1.83	67 50 11.6	- 9.4	Radcliffe, 1890, 922.
(j)	3 55 9.30	+ 1.81	67 43 33.6	- 9.3	Radcliffe, 1890, 942.
(k)	3 55 9.75	+ 1.83	67 56 55.1	- 9.4	Comparisons with Radcliffe, 1890, 945.
(l)	4 49 48.29	+ 2.65	90 31 43.0	- 14.8	Mean of Paris, 5643, and Göttingen, 1875, 1380-1.
(m)	4 29 20.75	+ 3.09	101 56 43.9	- 12.9	Radcliffe, 1890, 1091.
(n)	4 28 52.68	+ 3.08	102 11 32.8	- 12.8	Radcliffe, 1890, 1086.
(o)	4 14 7.32	+ 0.41	103 35 24.0	+ 3.0	Radcliffe, 1890, 1028.
(p)	4 12 25.27	+ 0.41	103 44 44.0	+ 3.1	Radcliffe, 1890, 1021.
(q)	1 27 7.91	- 0.87	56 19 6.0	- 8.3	Radcliffe transit-circle observations, 1894 November 5, December 27.
(r)	8 23 10.60	+ 0.16	42 53 39.1	- 8.2	Paris, 10406.
(s)	10 58 48.25	+ 0.73	57 59 14.7	- 5.1	Leiden, A. G., Zones 170, 284.
(t)	22 13 21.08	- 0.75	88 14 4.1	+ 4.8	Seeliger's Lamont, 30666.

In the computation of the parallaxes the adopted value of the Sun's mean horizontal parallax is 8"85; and the geocentric distances,  $\Delta$ , are taken, except in the last case, from the *Astronomische Nachrichten*, as follows:—(a), (b), (c), No. 2838; (d), 2846; (e), (f), 2913 (g), (h), 2916; (i), (j), 3045; (k), 3054; (m), (n), (o), (p), 3064; (q), 3140; (r), (s), 3173; (t), *Bulletin de l'Academie Imperiale des Sciences de St. Petersbourg*, 1894 November.

Radcliffe Observatory, Oxford : 1895 January 10.

*Estimations of Magnitude of Nova Aurigæ, made at the Radcliffe Observatory, Oxford.* Communicated by E. J. Stone, M.A., F.R.S., Radcliffe Observer.

Estimations of the magnitude of the *Nova* have been made on the following twenty-three nights:—1893, January 16, 17, 20; February 4, 7, 8, 11, 16, 28; March 4, 10, 16, 27; April 4, 12, 21; May 3, 10; August 24; November 9. 1894, January 12, 23; and November 5. No sensible change was detected, the magnitude remaining at 9.7 on the scale published in the *Monthly Notices*, vol. lii. 6, p. 431, where a chart is given of the selected comparison stars.

*Ephemerides of the Five Inner Satellites of Saturn, 1895.*  
By A. Marth.

Greenwich Noon. 1895.	P	L	B	B	A-L	Long. of Centr. Mer.	B'
Feb. 25	359°953	215°661	+18°392	+16°808	-5°042	200°66	+20°28
Mar. 2	°940	215°555	18°337	16°865	4°782	105°10	20°22
7	°922	215°410	18°270	16°921	4°481	9°57	20°14
12	°899	215°226	18°191	16°977	4°141	274°06	20°06
17	°872	215°005	18°102	17°033	3°765	178°55	19°96
22	°840	214°751	18°003	17°090	3°356	83°05	19°85
27	359°805	214°467	+17°896	+17°147	-2°917	347°55	+19°74
Apr. 1	°767	214°157	17°781	17°204	2°451	252°04	19°61
6	°727	213°824	17°659	17°260	1°963	156°52	19°48
11	°684	213°474	17°533	17°316	1°458	60°98	19°34
16	°639	213°111	17°405	17°372	0°940	325°42	19°20
21	°594	212°740	17°275	17°428	-0°413	229°83	19°06
26	359°548	212°366	+17°146	+17°484	+0°116	134°21	+18°92
May 1	°503	211°994	17°019	17°539	0°644	38°55	18°78
6	°458	211°628	16°895	17°594	1°165	302°84	18°65
11	°415	211°274	16°777	17°650	1°675	207°09	18°52
16	°374	210°935	16°666	17°705	2°170	111°29	18°40
21	°335	210°616	16°563	17°760	2°645	15°43	18°29
26	359°299	210°320	+16°471	+17°814	+3°097	279°52	+18°19
31	°266	210°051	16°390	17°869	3°521	183°55	18°10
June 5	°237	209°813	16°321	17°924	3°9°5	87°53	18°02
10	°212	209°607	16°235	17°978	4°277	351°45	17°96
15	°191	209°436	16°223	18°032	4°604	255°30	17°92
20	°175	209°301	16°195	18°086	4°895	159°10	17°89
25	359°163	209°205	+16°182	+18°140	+5°148	62°85	+17°87
30	°156	209°148	16°184	18°194	5°361	326°54	17°87
July 5	°154	209°130	16°201	18°248	5°535	230°17	17°89
10	°157	209°152	16°233	18°302	5°669	133°76	17°93
15	°164	209°214	16°280	18°355	5°764	37°30	17°98
20	°176	209°315	16°342	18°408	5°820	300°80	18°05
25	359°193	209°455	+16°417	+18°461	+5°837	204°26	+18°13